

## MONTHLY REPORT OF RIVER/FLOOD CONDITIONS

**TO: NATIONAL WEATHER SERVICE  
HYDROMETEOROLOGICAL INFO CENTER  
1325 EAST-WEST HIGHWAY  
SILVER SPRING, MD 20910**

**REPORT FOR:**  
**November 2009**

**Date:** 12/21/09

**Signature:** Peter Corrigan

**Summary:** November 2009 was the wettest November in at least 13 years in the Blacksburg Hydrologic Service Area (HSA). The month was highlighted by the remains of Hurricane Ida, which moved through the region November 11-12 bringing heavy rain to the foothills and piedmont along with widespread flooding on rivers and streams. Several other significant rain events occurred as well making November quite wet overall. Mean precipitation was 6.05" versus the long-term average (1971-2000 normal) for this month of 3.32 inches (75 of the 75 cooperative stations reporting), or 182% of average. It was much wetter in the piedmont than the mountains due primarily to Ida, with monthly totals at NWS stations ranging from a low of 2.01" at McCross (MCRW2) in Greenbrier County, WV to a high of 12.06" at Yanceyville (YAVN7) in Caswell County, NC. Monthly average temperatures were well above normal, running from 3 to 4 degrees above the long-term averages. Mean monthly temperatures ranged from a low of 42.8°F at Blacksburg (+3.0°) to a high of 51.8°F at Danville (+3.2°).

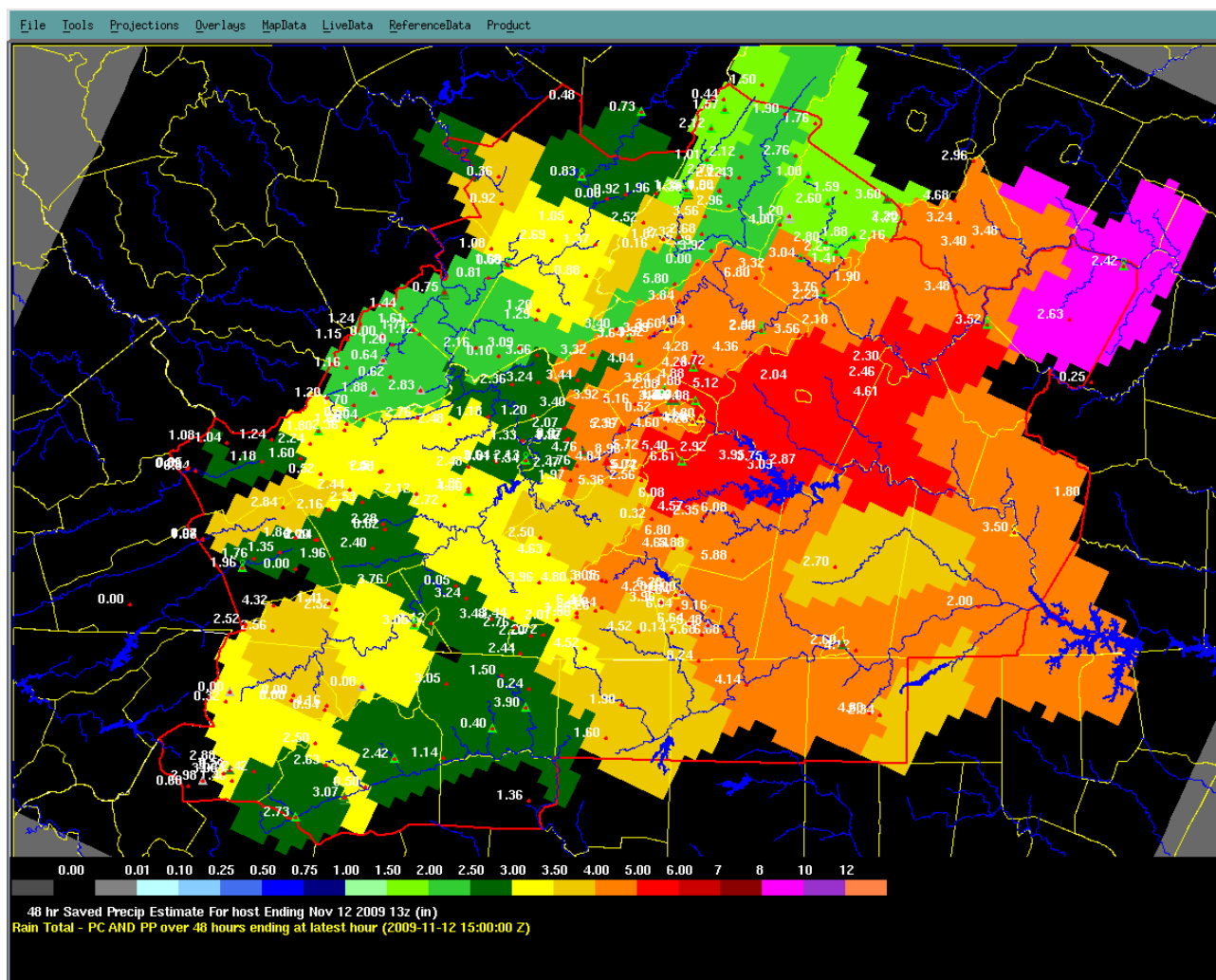
The month began with a fairly significant precipitation event that actually got under way late on October 31 and produced moderate to heavy rainfall into the first two days of November. The rainfall was heaviest over the Blue Ridge foothills and across the piedmont with widespread 2 to 3 inch amounts in those sections. The western mountains had generally less than 0.75 inches from this system as low pressure developed on the front along the North Carolina coast. A Flood Warning was issued for the Dan River at South Boston late on the 2<sup>nd</sup>, but the river crested several feet below flood stage.

The first November tropical system to affect the Blacksburg HSA in a number of years was the remains of Hurricane Ida, which made landfall in Alabama early on the 10<sup>th</sup>. A Flood Watch was issued on the afternoon of the 10<sup>th</sup> as it became apparent that the low pressure center that had been Ida would track somewhat further northwest and deep tropical moisture would overspread the area. The storm remnants tracked northeast across southern Georgia to the Atlantic coast over the next several days bringing widespread heavy rains of 3 to 6 inches (with isolated higher amounts – see Table 1 and Figure 1 below) across portions of the Dan and Roanoke river basins, and 1 to 3 inches in the New and James river basins. Most of the rain fell in about a 36-hour period from the afternoon of November 10 through early November 12. Rainfall rates were moderate but persistent during this period in many areas, generally remaining under 0.25”/hr with little or no convection. Given relatively wet soils and the time of year there was substantial runoff. At 12Z on the 11<sup>th</sup> the

surface low was centered over southeast Georgia and continuing to spread an impressive shield of rainfall to the northwest. River flood warnings and a multi-county Flood Warning for small streams were both issued mid-morning on the 11<sup>th</sup> as 2 to 3-inch 24-hour rainfall was already “on the ground” amidst continuing moderate to heavy rainfall. Initial River Flood Warnings generally called for minor flooding along the Dan and Roanoke rivers but these forecasts were revised substantially upward over the next 24 hours as additional rains occurred and runoff became more efficient. Eventually forecasts for major or near major flooding were issued, although these wound up being somewhat overdone. Still, moderate flooding was observed along portions of the Dan and Roanoke rivers. In the upper Roanoke basin it was the first substantial test for the new flood control project in the city of Roanoke since it has been mostly completed. Initial forecasts for the Walnut Street gage (RONV2) suggested that high-end moderate flooding would occur with a crest of 15.5 feet (Major flood stage is 16 feet. Moderate is 12 feet). A significant flood wave did propagate downstream from the upper basin and significant flooding occurred in portions of the South Fork Roanoke River. On the South Fork Roanoke River at Shawsville (SHAV2) the river crested at 8.0 feet (nominal flood stage is 5 feet) on the morning of the 12<sup>th</sup>, which was the 9<sup>th</sup> highest crest at this location in 48 years of USGS records. Further downstream at Lafayette (LAAV2), just below the confluence of the North and South Forks of the Roanoke, the gage crested at 9.72 feet (nominal flood stage is 8 feet) which was the highest since September 2004, and very comparable to flooding that occurred in June 2006. However, the eventual crest of 10.33 feet at RONV2 (see E-3 section below) was less than 1 foot over Minor flood stage (10 feet). Subsequent analysis of streamflows at various points within the upper Roanoke basin suggested that the flood control project lowered stages at the Walnut Street gage (RONV2) by about 2 to 3 feet. Flooding on the Dan River was also significant with moderate to near major flooding at the forecast locations. Paces (PCEV2) crested at 26.99 feet a shade below Major flood stage of 27 feet. This was still the 9<sup>th</sup> highest crest at this gaging station in the 58 years of USGS records. Several other gaged streams had stages that exceeded nominal flood stage including Johns Creek, Craig Creek, Cub Creek, Falling River near Naruna and both Glenvar and the Salem Pump Station on the Roanoke River. Small stream flooding was also widespread with numerous reports of closed roads due to flood waters across a large part of the HSA.

**Table 1 – Top fifteen 48-hour Precipitation amounts: RNK HSA – valid 1200 UTC, 11/12/09**

<b><u>SHEF ID</u></b>	<b><u>Station</u></b>	<b><u>County</u></b>	<b><u>Type</u></b>	<b><u>Precipitation</u></b>
JOEV2	JONES CREEK	HENRY	IFLOWS	8.84
POOV2	POOR MTN.	ROANOKE	IFLOWS	8.40
MAOV2	MARROWBONE RES.	HENRY	IFLOWS	7.88
TKSV2	TINKER CREEK S.	ROANOKE	IFLOWS	7.68
BUSV2	BUSTED ROCK #1 IFLOW	PATRICK	IFLOWS	7.24
SLOV2	SLOAN BRANCH	BOTETOURT	IFLOWS	6.56
LWSV2	LOWER SMITH	HENRY	IFLOWS	6.56
FUMV2	FERRUM	FRANKLIN	IFLOWS	6.56
MGDV2	MAGGODEE CK	FRANKLIN	IFLOWS	6.29
FR1VA	ROCKY MT. 3.6W	FRANKLIN	COCORAHES	6.25
CIRV2	CIRCLE M	HENRY	IFLOWS	6.16
MEAV2	MEADOWS CHURCH	PATRICK	IFLOWS	6.12
SCFV2	ROCKY MOUNT/PIGG R	FRANKLIN	IFLOWS	5.92
RAGV2	RANGELEY BRANCH	HENRY	IFLOWS	5.92
BLAV2	BLACKWATER/CALLAWAY	FRANKLIN	IFLOWS	5.92



**Figure 1. 48-hour basin-average MPE rainfall (with rain gage totals in white)  
12Z, November 12, 2009**

The remainder of November was relatively uneventful in terms of hydrology, with several light to moderate rainfall events but nothing particularly significant.

#### **Non-Routine Hydrologic Product Summary (Nov):**

Flood/Flash Flood Watches (FFARNK): 41

Flood Advisories (Urban/Small Stream - FLNRNK): 3

Flash Flood Warnings (FFWRNK): 0

Areal Flood Warnings (FLWRNK): 43

River Flood Warnings (FLWRNK - forecast points): 18

<b>NWS FORM E-3</b> U.S. DEPARTMENT OF COMMERCE NOAA, NATIONAL WEATHER SERVICE <b>FLOOD STAGE REPORT</b>		HYDROLOGIC SERVICE AREA: <b>Blacksburg, VA (RNK)</b>				
		MONTH: <b>November</b>			YEAR: <b>2009</b>	
RIVER AND STATION	FLOOD STAGE (FEET)	ABOVE FLOOD STAGE		CREST		
		FROM	TO	STAGE (FEET)	DATE	TIME (UTC)

### Dan River

Danville (DVLV2)	17	11/12/09	11/14/09	23.56	11/13/09	0945
Paces (PCEV2)	20	11/12/09	11/14/09	26.99	11/14/09	0415
South Boston (SBNV2)	19	11/12/09	11/16/09	27.50E	11/14/09	1530

### Roanoke River

Roanoke (RONV2)	10	11/12/09	11/12/09	10.33	11/12/09	2000
Alta Vista (ALTV2)	18	11/12/09	11/13/09	20.52	11/12/09	2000
		11/13/09	11/13/09	19.09	11/13/09	1030
Brookneal (BROV2)	23	11/12/09	11/14/09	27.51	11/13/09	0400
Randolph (RNDV2)	21	11/12/09	11/16/09	27.09	11/14/09	0515

### James River

Bremo Bluff (BREV2)	19	11/13/09	11/14/09	20.10	11/13/09	2028
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cc:  
 MIC RNK  
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